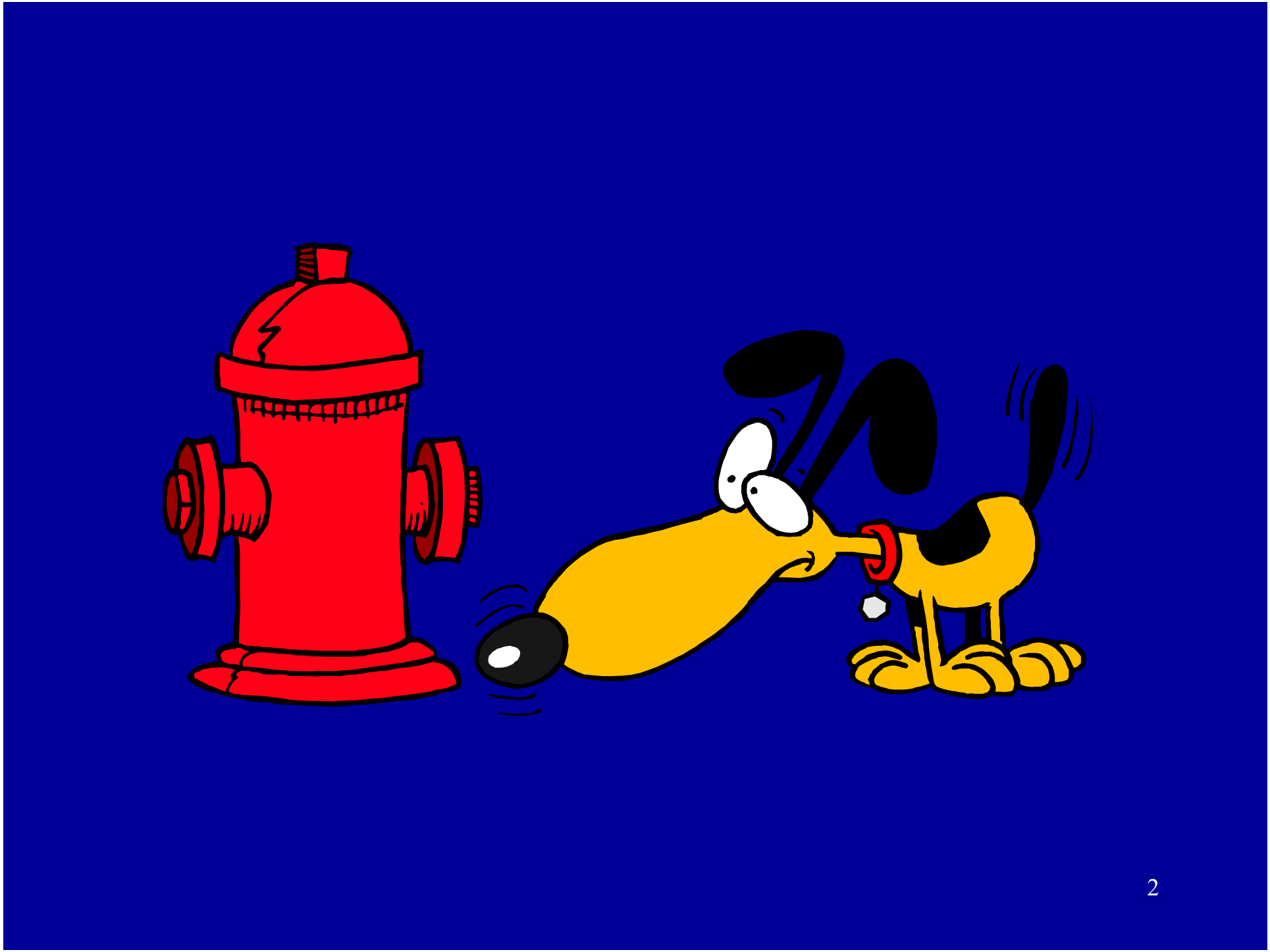
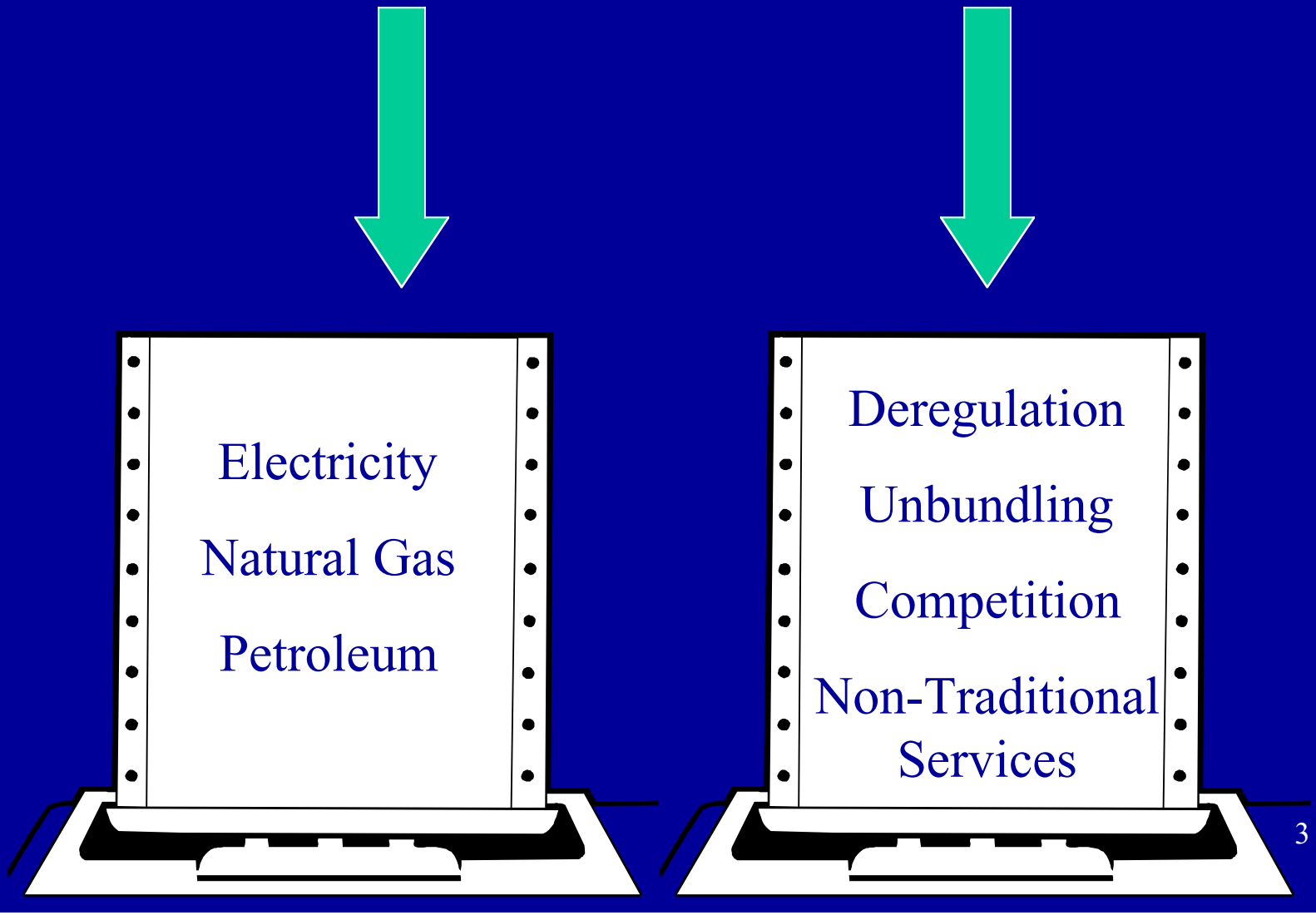
What Will the Energy Industry Look Like After Choice?

EPRI Technology Management Workshop
Orlando, Florida

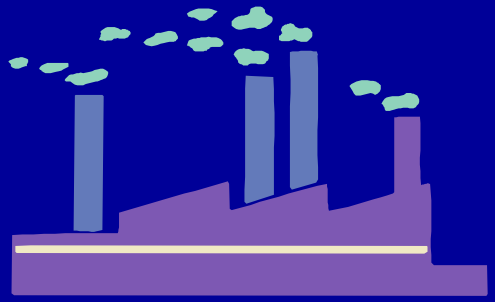
Robert A. Laurie, Commissioner
California Energy Commission
June 19, 2000



Energy Industry After Choice



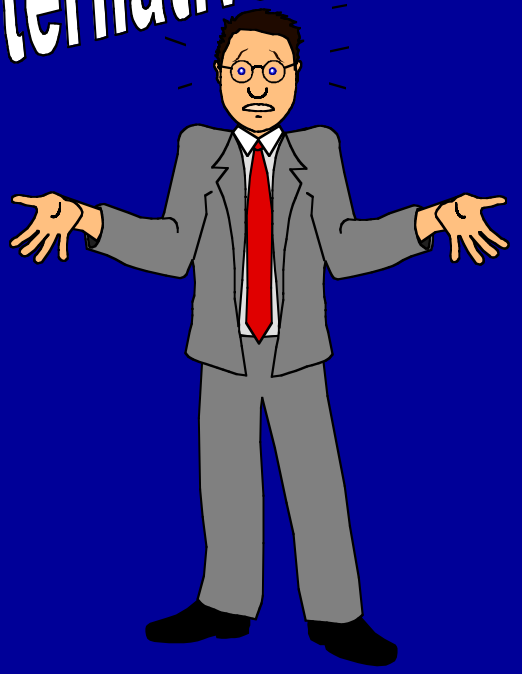
Basic Elements of the Electricity Industry

Generation (Produced)	Transmission (Moved)	Distribution (Consumed)
		
Nuclear Hydro Natural Gas Cogeneration Renewables	High Level Lines to move over long distances	Lighting Cooking and Heating Air Conditioning Motors & Manufacturing

Causal Factors of Electricity Restructuring

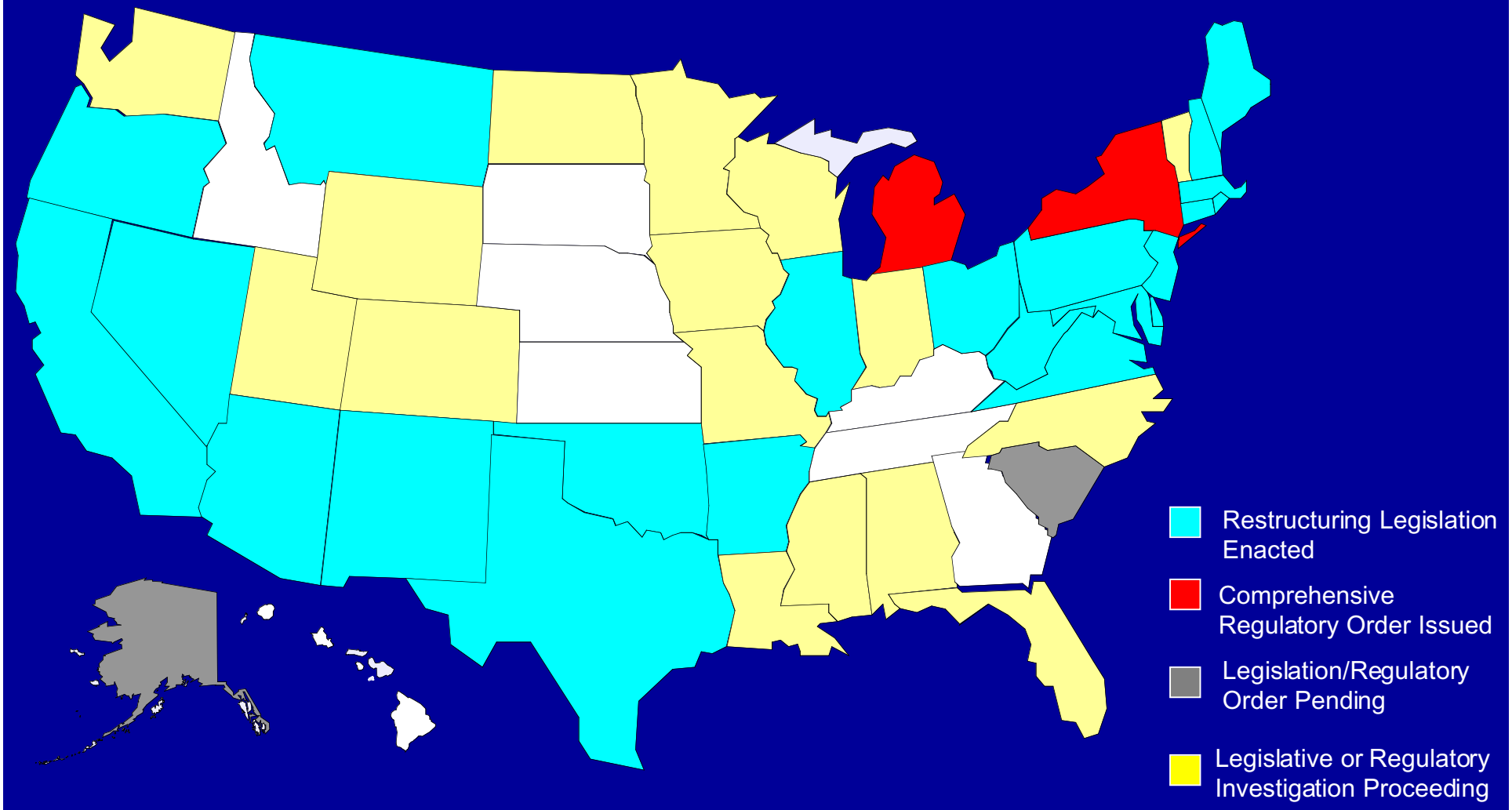
High Energy Rates

No Alternatives to Consumers



Status of Electric Industry Restructuring

As of May 2000



Source: Energy Information Administration

Choice Leads to .
(The Good News)

- Product and Service Innovation
- A Flourishing Energy Service Provider Market
  - Bundled packages of services offered to consumers.
  - Less regulation, more competition.
- Demand Responsiveness
  - Via consumer access to information (Real-time pricing and two-way communication)
- Supply Responsiveness
  - Short-term: Generators respond to real-time pricing markets.
  - Long-term: Generators invest in new power plants.

Choice Also Leads to .
(The Bad News)

- Market Uncertainties
  - Price Volatility
  - Concerns About Service Quality and Reliability
  - Unscrupulous market participants
- Environmental Concerns
  - Who pays?
  - Trade-offs between building generation or transmission facilities

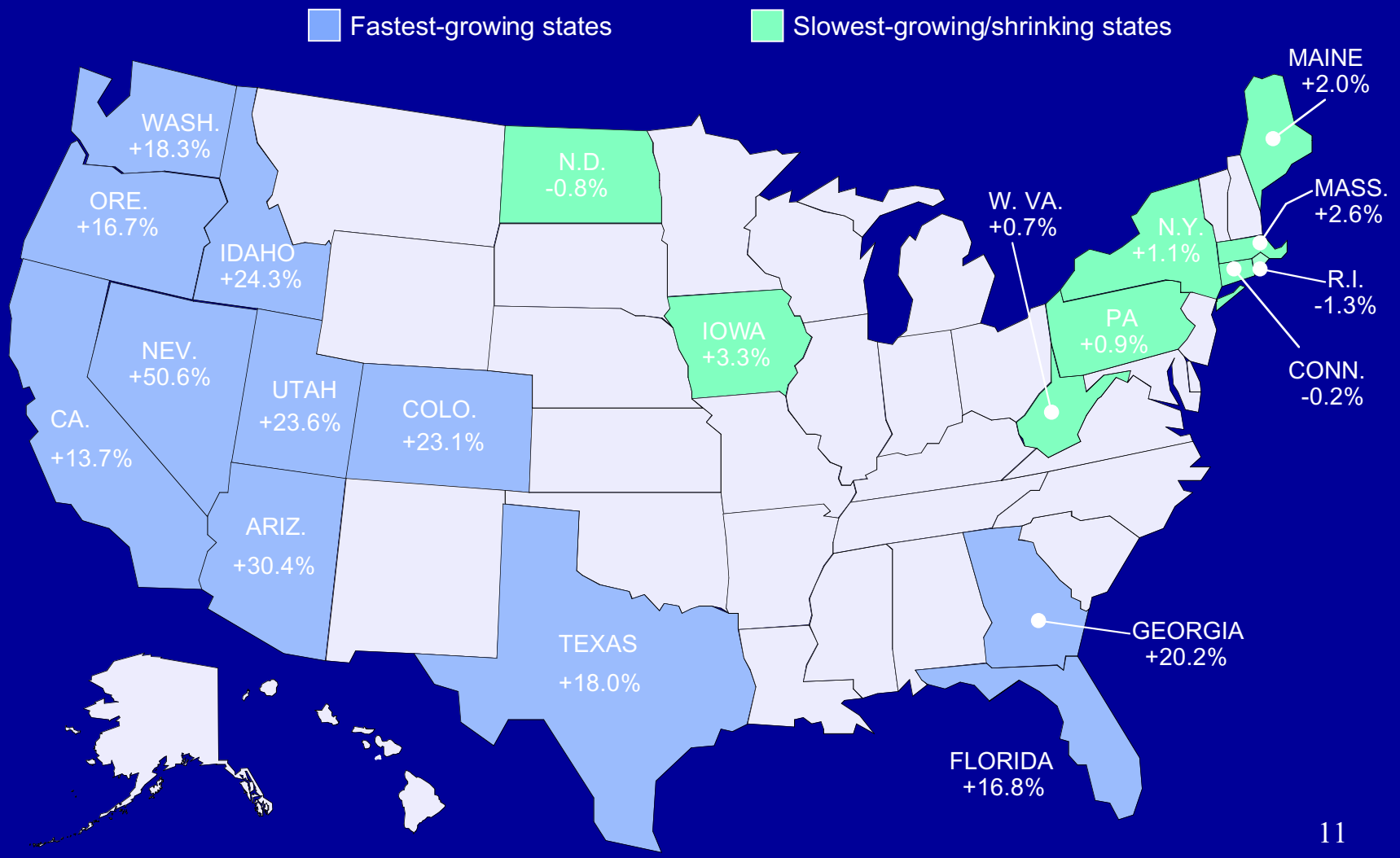
The Energy Supermarket of the Future???

What Drives Location of New Generation?

- Land availability and cost
- Ability to mitigate environmental and regulatory concerns
- Perceived market for ancillary services
- Proximity to the transmission grid, natural gas, and water supplies
- Demographics (population, climate, economics)

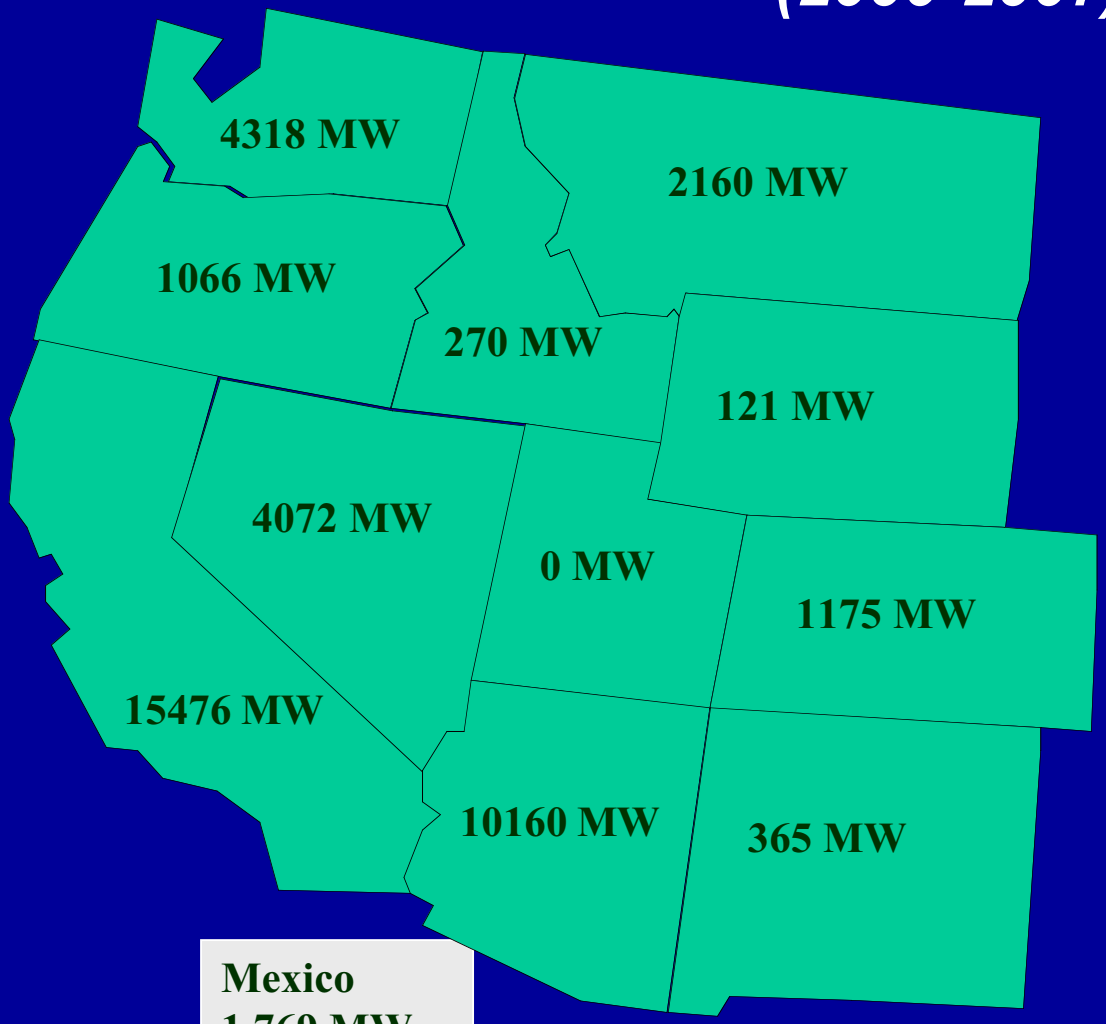
Demographic Drivers to New Generation Growth

Percentage changes in population from April 1, 1990 through July 1, 1999



Planned Generation Additions for Western Systems Coordinating Council (2000-2007)

BC/Alberta
1,629 MW



Total Planned WSCC Generation Additions:

90+ units with 42,456 MW

1 multi-unit project in multiple states:

5,000 MW

Mexico
1,769 MW

Barriers to Generation

- Continued regulatory control leading to market failures
- Availability and adequacy of water supply
- Imposition of air quality standards
- Local opposition to project
- Transmission constraints

California Generation Experience

Supply View

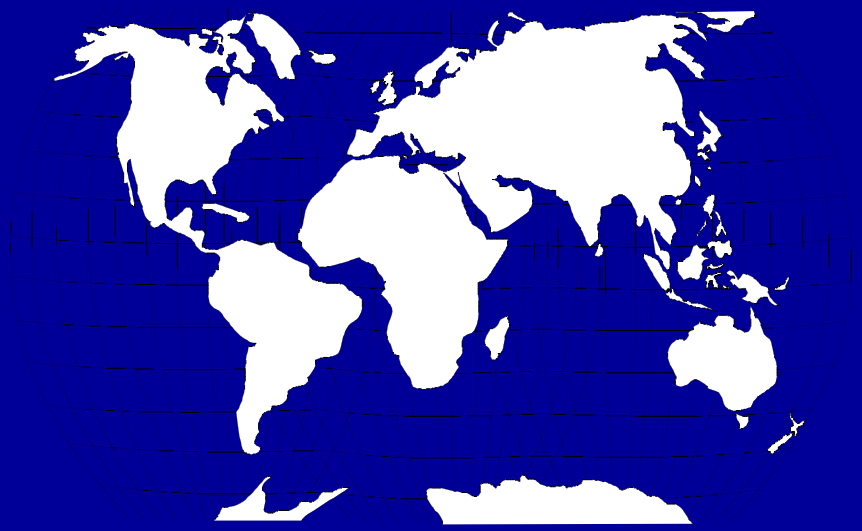
Merchant Interest in California

- 3,643 MW licensed by Energy Commission since 1999.
- 15 merchant power plant applications currently under consideration (8,825 MW).
- Proposed plants are large scale, technologically more efficient and operationally flexible than their predecessors.

California Generation Experience
Consumer View

- Consumers have clear choices regarding generation via direct access process.
- Direct access process presently accounts for 15% of total California electricity consumption.
  - Large industrial customers are the largest players (34.6% of its load).
  - Residential customers comprise only 2.3% of total.
- April 2000 activity
  - More than 8,000 direct access service requests submitted
  - Approximately 4,400 switches from utilities to ESP
  - More than 3,300 switches from ESP to utilities

Choice Is Not Just a Domestic Issue...

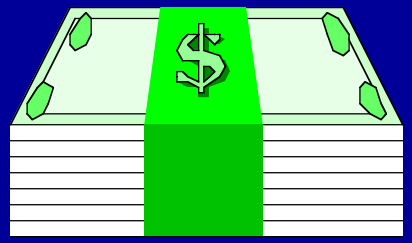


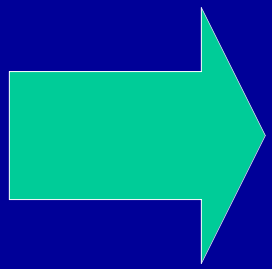
International markets are looking at or have already initiated energy deregulation.

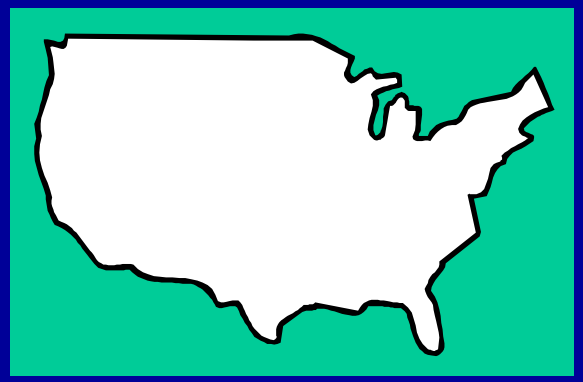
Just What Is Driving Need to Restructure Markets Abroad?

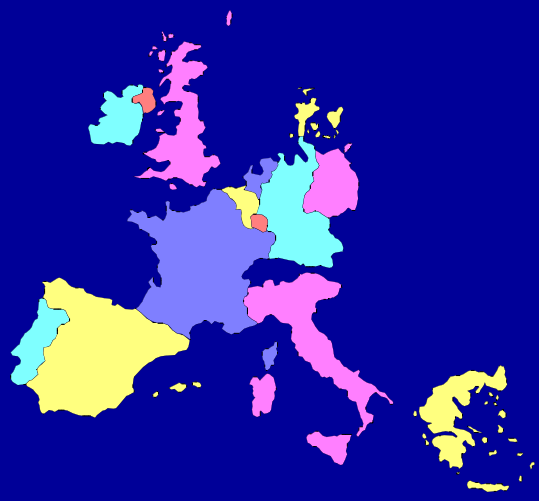
Economic Growth!!!

But Where Are the Investment Dollars Going?









The Future of Transmission...

- Transmission services provided on open access basis.
- Expansions/enhancements based on market need.

The Future of Distribution

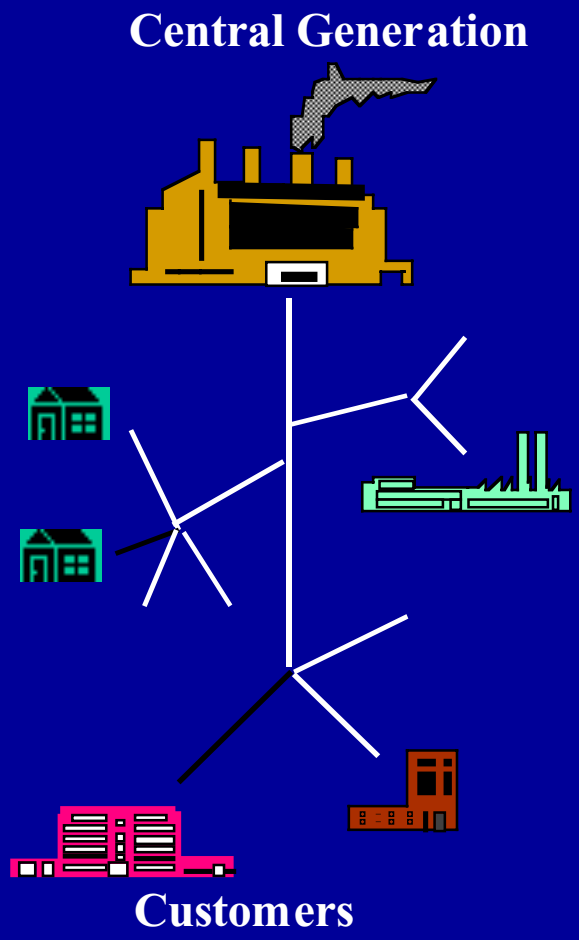
- Distribution services will continue to be unbundled from traditional utility.
- Distribution competition and the role of utility will be examined throughout the U.S.
- Distributed generation will play a major role in the future composition of the distribution market.

The Future of Generation...

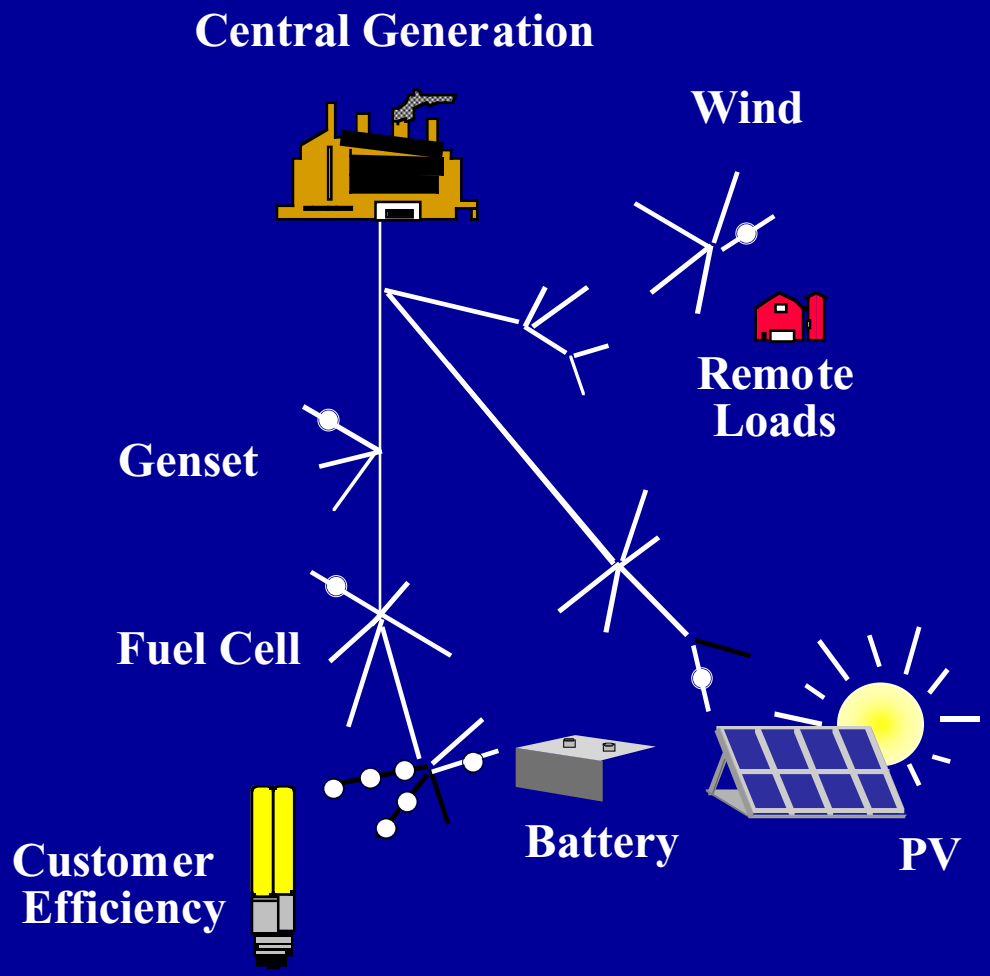
- Improved Central Power Plant Operations
  - Power plant merchants construct new and repower existing facilities that are more efficient and operationally flexible.

- DG Technology Deployment
  - Empowers customers by providing generation choices
  - Provides answers to concerns about system reliability and power quality.
  - Provide dynamic benefits to the distribution system

Today's Central Utility

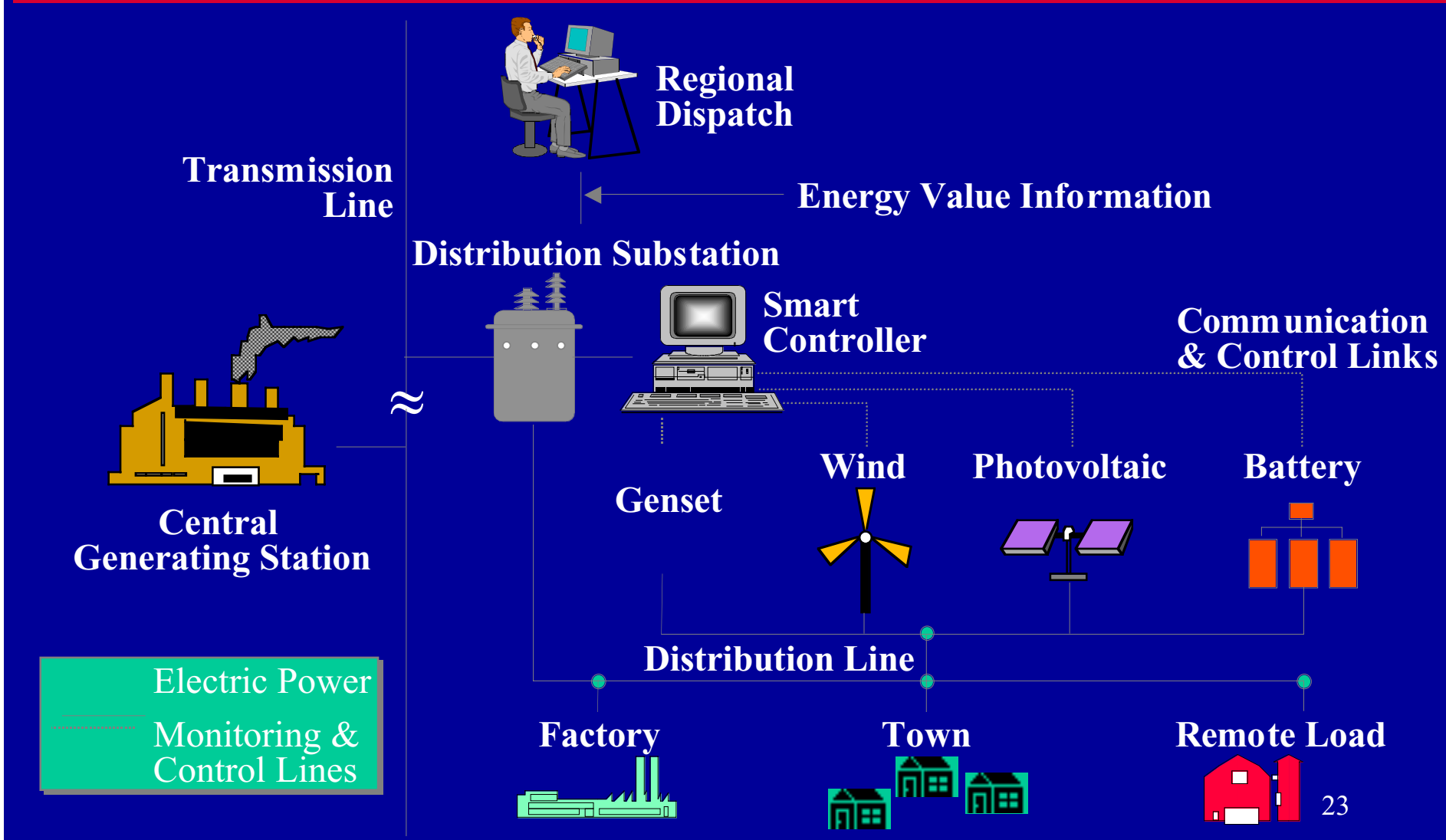


Tomorrow's Distributed Utility?



' Distri buted Utility Associates, Used with Permission

Operating the Distributed Utility



' Distri buted Utility Associates, Used with Permission

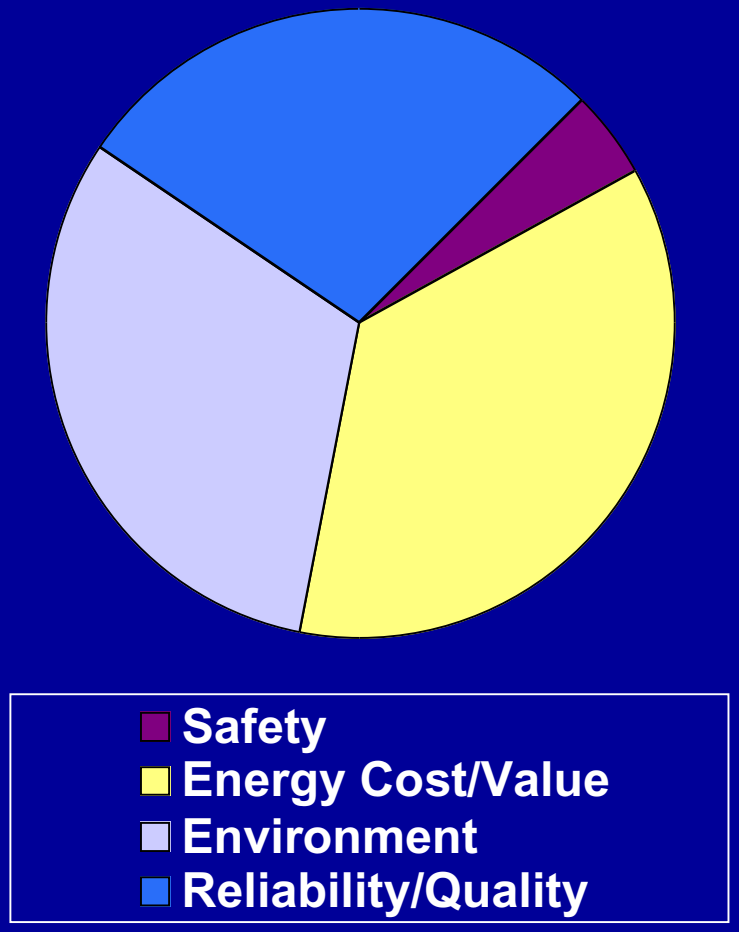
The Future of R&D...

- What happens to R&D in a competitive market?
- What areas of R&D are likely to be the focus?
- How will public interest R&D be provided as firms seek competitive advantage?
- Will non-utility firms play a greater role in electricity-related R&D?
- Will increasing focus on consumers lead to more demand-side R&D and less supply-side R&D?

R&D Focus in California

Goals of Public Interest Energy Research (PIER) Program

- Improve energy cost of California s electricity
- Improve environmental and public health benefits
- Improve reliability and power quality.
- Improve safety of California electricity system.
- Improve products and services for marketplace.



The Future Role of Government...

- Government regulation of energy markets will continue in restructured marketplace.
- Government will continue promoting public purpose programs.
- Legislation will continue to be responsive to concerns expressed by general population.